Wayne - route to files
M/053/005
Tony ✓
Holland ✓

Norman H. Bangerter
Governor
Kenneth L. Alkema
Executive Director
Don A. Ostler, P.E.
Director

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

288 North 1460 West
Salt Lake City, Utah
(801 538-6146
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Reply to: State of Utah
Division of Water Quality
Department of Environmental Quality
Salt Lake City, Utah 84114-4870

November 21, 1991

Mr. Ken A. Kluksdahl
Tenneco Minerals
P.O. Box 2650
955 North 1300 West #4
St. George, Utah 84770

Re: Tenneco Minerals
Goldstrike, Phase 3
Construction Permit

Dear Mr. Kluksdahl:

We have completed our review of the plans and specifications for Heap Leach Pad No. 2 at the Goldstrike Mine. The plans were submitted on February 26, 1991. Our letter dated May 30, 1991 advised of interruption of the review in light of uncertain construction schedule.

The project basically complies with the current design requirements and practices for heap leach facilities. A **construction permit is hereby issued** as constituted by this letter, subject to the following conditions:

A. *All changes to these approved plans and specifications must be reviewed and approved by the Division.*

B. *This construction permit allows the use of the heap leach pad described herein until November 20, 1996. Neutralization procedures shall commence on or before that date.*

C. *Leaching operations on the extended portion must not begin until a final inspection is conducted and a written authorization to use the facilities is issued by the division.*

D. *The project shall be inspected continuously while under construction by a qualified and independent construction inspector.*

E. *Areas between the toe of the heaped ore to the farthest edge of the proposed pad must be double lined with two high density polyethylene (HDPE) liners, with a leak detection system installed between the liners. Details must be submitted for the review and approval before installation begins.*

F. *Leak detection pipes shall not penetrate any HDPE liners.*

G. *A performance certification acknowledging fulfillment of the requirements, contained in our letter dated June 6, 1991, for the compacted fill material on which Pad No. 2 will be extended, must be submitted for our review and approval before beginning any construction on Pad No.2.*

H. *The Division shall be notified within two (2) days of completion of each component listed below and before construction of the next sequenced component, so proper inspection can be arranged:*

1. *Construction of leak detection system base*

2. *Construction of the leak detection media*

3. *Construction of each lift of the secondary clay liner*

4. *Field seaming of the HDPE liner*

I. *The Division shall be notified in a timely manner so an inspection of the installed HDPE liner surface can be conducted prior to covering the surface with any material.*

J. *The Division shall be notified in writing at least ten (10) days prior to completion of leaching operations and prior to commencing closure procedures.*

K. *Any liquid detected in any leak detection sump shall be reported to the Division by phone within 24 hours and in writing within five days.*

L. *The neutralization criteria shall be as adopted by the Utah Water Quality Board at the time of decommissioning, or as approved in writing by the Division at the time of decommissioning, but in no case shall the neutralization criteria for this heap leach project result in degradation of the surface or ground water quality including beneficial uses thereof in the vicinity.*

M. *Piezometer or other acceptable devices to monitor the head on the primary HDPE liner must be installed. These devices must be monitored on a daily basis throughout the life of the pad. Plans for these devices must be submitted for review and approval prior to construction.*

N. *Settlement stands or other acceptable devices for monitoring settlement must be installed. These devices must be monitored on a weekly basis and reported monthly. Plans for these devices must be submitted for review and approved prior to installation of the liner.*

O. All interfaces between existing and new liner material must be inspected and tested after completion.

P. The process solution collection system (over-liner) shall consist of 36 inches of specified material or 18 inches of specified material with 18 inches of 4-inch minus ore on top.

Q. The quality assurance tests and frequency of testing for the leak detection system base will be the same as for the secondary clay liner.

R. The leak detection system shall be divided by clay barriers and each section shall have individual leak detection pipes.

S. The leak detection layer shall be graded such that no piping of fine material from the clay liner occurs.

T. The heap leach pad shall be surrounded by perimeter berm and drainage ditches to direct surface runoff around the project and into down gradient drainage.

The heap leach pad liner system shall be capable of retaining its integrity under the ore loads imposed and shall consist of:

A. Process solution collection system, which will limit process fluid head to 12 inches.
B. 80 mil HDPE primary liner
C. 12-inch minimum of 2.0×10^{-7} centimeters per second secondary clay liner.
D. 6-inch minimum of 1.0×10^{-2} centimeters per second leak detection media.
E. 6-inch minimum of 1.0×10^{-6} centimeters per second base

The approved design criteria are enclosed herewith. We are advising you that any increase in pH, cyanide or other metals listed in the ground water permit in ground water or surface water above background level due to this project may cause the project to be listed on the national priority list of hazardous substance sites by EPA pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). All wastes not exempt under the mining exemption will need to be managed in accordance with Utah's Hazardous Waste Management regulations (i.e. spent solvents, off specification chemicals, undesirable metals in the leach solutions etc.).

By copy of this letter to the Division of Oil Gas and Mining, we are requesting that their personnel inspect all leak detection sumps at the facility each time an inspection is made. In addition, the process ponds must have fencing and netting as provided in the past and the process ditches must have covers.

The issuance of this permit does not relieve you in any way of obtaining applicable permits from local jurisdictions. You may contact Mr. Bill Dawson, of the Southwest District Health Department, at (801) 628-7413 for compliance with any other local requirements.

A set of approved plans and specifications is returned herewith bearing our construction permit stamp. We must receive the revised set of plans and specifications for review and approval prior to installation of the liner system. This set of plans must be kept available for examination and inspection to be conducted by the Division of Water Quality, and for resolution of any conflicts or discrepancies in installation that may arise.

Please advise us of the beginning of construction. This will enable us to monitor the progress and schedule periodic inspections.

Please call Lyle Stott of my staff if there are any questions.

Sincerely,

Utah Water Quality Board

Don A. Ostler, P.E.
Executive Secretary

LWS:

Enclosures

cc: Wayne Thomas, Southwest District Health Department
Bill Dawson, Southwest District Health Department
Lowell Braxton, Division of Oil, Gas and Mining
Tim Provan, Division of Fish and Game

N:gldstrk3

DESIGN CRITERIA, TENNECO MINERALS

November 21, 1991

A. The heap leach pad covered by this permit covers a total area of 12.8 acres, and ore will be stacked upon this pad to a maximum height of 150 feet.

B. The heap leach pad liner system shall be capable of retaining its integrity under the ore loads imposed and shall consist of:

1. 80 mil minimum HDPE primary liner
2. 12 inch minimum of 2.0×10^{-7} centimeters per secondary clay liner
3. 6 inch minimum of 1.0×10^{-2} centimeters per second leak detection media
4. 6 inch minimum of 1.0×10^{-6} centimeter per second base

C. Two pipelines for the inclinometer including settlement stands will be installed to measure differential settlement between undisturbed ground and fill areas under the pad.

D. All liner anchor trenches will be 12 inches or more deep and must be filled with acceptable material properly packed or compacted.

E. Approximately 6 acres of heap leach pad surface area will be leached at any one time.

F. The process solution collection system (overliner) shall consist of 36 inches of specified material or 18 inches of specified material, with 18 inches of 4-inch minus ore on top.

G. The leak detection system shall be divided by clay barriers and each section shall have individual leak detection pipes.

H. The leak detection layer shall be graded such that no piping of fine material from the clay liner occurs.

I. The maximum slope for stacking ore is 2 horizontal to 1 vertical

J. Areas between the toe of the heaped ore to the edge of the proposed pad must be double lined with two flexible membrane liners (FML).

K. Leak detection pipes shall not penetrate any FML liners.